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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/755,338	01/13/2004	Kenneth J. Young	84731 3085 KAW	1232
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			EXAMINER KIM, TAE JUN	
			ART UNIT 3746	PAPER NUMBER
			MAIL DATE 08/21/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/755,338

Applicant(s)

YOUNG, KENNETH J.

Examiner

Ted Kim

Art Unit

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 7-11, 13 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 12 and 15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 01/13/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of the species of Fig. 5 in the reply filed on 04/23/2007 is acknowledged.
2. Claims 7-11, 13, 14 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 04/23/2007. Note that claim 14 was elected but as it is dependent on a non-elected claim, its status is also non-elected.

Drawings

3. The drawings are objected to because on the drawing Figure where "Fig. 3", Fig. 3 should only refer to the bottom Fig. Furthermore, the top Fig. that is admitted prior art should be labeled e.g. Fig. 7 and listed in the specification. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary

to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-6, 12, 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Hussey et al (3,763,650). Hussey et al teach a fuel injector nozzle for a gas turbine, the nozzle comprising an air supply presented to a fuel distribution arrangement whereby fuel presented to the air flow is mixed for subsequent combustion in use, the fuel being presented by fuel distribution structures e.g. 61, 61' or 62, 62' (Figs. 3, 5) in the nozzle *wherein the fuel distribution structures are asymmetrically distributed about the nozzle whereby fuel is differentially presented to the air flow passing through the nozzle in use*

dependent upon localised air flow pressure; wherein the nozzle inherently has a greater cross-section than the air flow directly impinging upon the nozzle [these limitations are a considered intended use or functional only as there is no structure to accomplish this]; wherein the fuel distribution structures are inherently configured such that less fuel is presented at portions of the air flow of lower flow pressure typically outside of the direct impingement cross-section of the air flow. A fuel distribution structure for a fuel injection nozzle wherein the fuel distribution structure distributes fuel to an air flow, wherein the fuel distribution structure e.g. 61, 61' or 62, 62' (Figs. 3, 5) is radially asymmetric in order to differentially present fuel to the air flow dependent upon localised air flow pressure; wherein the fuel distribution structure comprises a plurality of grooves; wherein the fuel distribution structure comprises a number of passageways; wherein the fuel distribution structure is an integral part of a fuel injection nozzle 30.

6. Claims 1-6, 12, 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Clark (5,267,442). Clark teaches a fuel injector nozzle (see e.g. Fig. 3, 3a) for a gas turbine, the nozzle comprising an air supply presented to a fuel distribution arrangement whereby fuel presented to the air flow is mixed for subsequent combustion in use, the fuel being presented by fuel distribution structures in the nozzle wherein the fuel distribution structures A'' are asymmetrically distributed about the nozzle whereby fuel is inherently differentially presented to the air flow passing through the nozzle in use dependent upon localised air flow pressure; wherein the nozzle inherently has a greater cross-section than the air flow directly impinging upon the nozzle; wherein the fuel

distribution structures are configured such that less fuel is presented at portions of the air flow of lower flow pressure typically outside of the direct impingement cross-section of the air flow. A fuel distribution structure for a fuel injection nozzle wherein the fuel distribution structure distributes fuel to an air flow, wherein the fuel distribution structure A'' is radially asymmetric in order to differentially present fuel to the air flow dependent upon localised air flow pressure; wherein the fuel distribution structure comprises a plurality of grooves; wherein the fuel distribution structure comprises a number of passageways; wherein the fuel distribution structure is an integral part of a fuel injection nozzle

7. Claims 1-6, 12, 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Inoue et al (6,813,889). Inoue et al teach a fuel injector nozzle (see e.g. Fig. 4) for a gas turbine, the nozzle comprising an air supply presented to a fuel distribution arrangement whereby fuel presented to the air flow is mixed for subsequent combustion in use, the fuel being presented by fuel distribution structures 56 in the nozzle wherein the fuel distribution structures are asymmetrically distributed about the nozzle whereby fuel is differentially presented to the air flow passing through the nozzle in use dependent upon localised air flow pressure; wherein the nozzle has a greater cross-section than the air flow directly impinging upon the nozzle; wherein the fuel distribution structures are configured such that less fuel is presented at portions of the air flow of lower flow pressure typically outside of the direct impingement cross-section of the air flow. A fuel distribution structure for a fuel injection nozzle 56 wherein the fuel distribution structure

distributes fuel to an air flow, wherein the fuel distribution structure is radially asymmetric in order to differentially present fuel to the air flow dependent upon localised air flow pressure; wherein the fuel distribution structure comprises a plurality of grooves; wherein the fuel distribution structure comprises a number of passageways; wherein the fuel distribution structure is an integral part of a fuel injection nozzle 56a

8. Claims 1-6, 12, 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Van der Bank (2003/0106321). Van der Bank teaches a fuel injector nozzle for a gas turbine, the nozzle comprising an air supply presented to a fuel distribution arrangement whereby fuel presented to the air flow is mixed for subsequent combustion in use, the fuel being presented by fuel distribution structures 6a, 6b, or 8 in the nozzle 4 wherein the fuel distribution structures are asymmetrically distributed about the nozzle whereby fuel is differentially presented to the air flow passing through the nozzle in use dependent upon localised air flow pressure; wherein the nozzle has a greater cross-section than the air flow directly impinging upon the nozzle; wherein the fuel distribution structures are configured such that less fuel is presented at portions of the air flow of lower flow pressure typically outside of the direct impingement cross-section of the air flow. A fuel distribution structure for a fuel injection nozzle wherein the fuel distribution structure distributes fuel to an air flow, wherein the fuel distribution structure 6a, 6b, or 8 is radially asymmetric in order to differentially present fuel to the air flow dependent upon localised air flow pressure; wherein the fuel distribution structure comprises a plurality of

grooves; wherein the fuel distribution structure comprises a number of passageways;
wherein the fuel distribution structure is an integral part of a fuel injection nozzle 4.

9. Claims 4-6, 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Dick et al (5,545,033). Dick et al teach a fuel distribution structure for a fuel injection nozzle wherein the fuel distribution structure distributes fuel to an air flow, wherein the fuel distribution structure 3 is radially asymmetric in order to differentially present fuel to the air flow dependent upon localised air flow pressure; wherein the fuel distribution structure comprises a plurality of grooves; wherein the fuel distribution structure comprises a number of passageways; wherein the fuel distribution structure is an integral part of a fuel injection nozzle 2.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 2, 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of the above art as applied above, and further in view of the admitted prior art. The limitations of claims 2, 3 *wherein the fuel distribution structures are asymmetrically distributed about the nozzle whereby fuel is differentially presented to the air flow passing through the nozzle in use dependent upon localised air flow pressure; wherein*

the nozzle inherently has a greater cross-section than the air flow directly impinging upon the nozzle were considered above to be intended use or functional only as there is no structure to accomplish this. Applicant admits that the wider cross-section air/fuel arrangements are used in the art and have these claim limitations (see page 1, last paragraph of the specification). It would have been obvious to one of ordinary skill in the art to employ this type of arrangement, as the conventional practice in the art.

12. Claims 1-6, 12, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nesbitt et al (5,799,872) in view of any of Von der Bank (2003/0106321), Clark (5,267,442) or Hussey et al (3,763,650). Nesbitt et al teach a gas turbine fuel injector nozzle with fuel distribution structures 74, 74 but do not teach these are asymmetric.

Von der Bank teaches an asymmetric arrangement of the fuel distribution structures enhances flame stability (paragraph 0020). Clark teaches an asymmetric arrangement of the fuel distribution structures enhances lean blowout characteristics (see abstract).

Hussey et al teach that asymmetric fuel distribution allows for an enhanced temperature distribution for the turbine blades (see abstract). It would have been obvious to one of ordinary skill in the art to employ an asymmetric arrangement of the fuel distribution structures, as taught by any of Von der Bank, Clark or Hussey et al, in order to enhance flame stability and/or lean blowout characteristics and/or enhanced temperature distribution for the turbine blades. The limitations of claims 2, 3 *wherein the fuel distribution structures are asymmetrically distributed about the nozzle whereby fuel is differentially presented to the air flow passing through the nozzle in use dependent upon*

localised air flow pressure; wherein the nozzle inherently has a greater cross-section than the air flow directly impinging upon the nozzle are a considered intended use or functional only as there is no structure to accomplish this. Applicant admits that the wider cross-section air/fuel arrangements are used in the art and have these claim limitations (see page 1, last paragraph of the specification). It would have been obvious to one of ordinary skill in the art to employ this type of arrangement, as the conventional practice in the art.

Contact Information

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Ted Kim whose telephone number is 571-272-4829. The Examiner can be reached on regular business hours before 5:00 pm, Monday to Thursday and every other Friday.

The fax number for the organization where this application is assigned is 571-273-8300.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ehud Gartenberg, can be reached at 571-272-4828. Alternate inquiries to Technology Center 3700 can be made via 571-272-3700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). General inquiries can also be directed to the

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Patents Assistance Center whose telephone number is 800-786-9199. Furthermore, a variety of online resources are available at <http://www.uspto.gov/main/patents.htm>

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